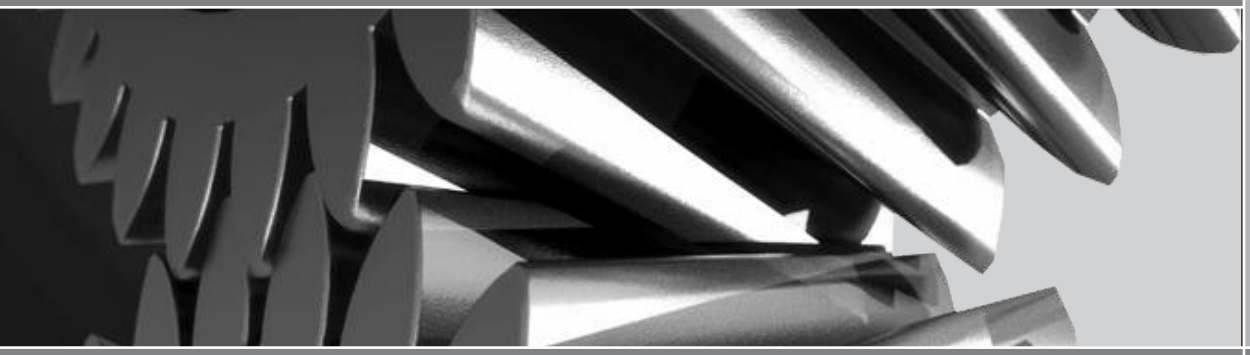
Coaxial-Gear

Aluminum gearboxes



Use and maintenance manual

Manuale uso e manutenzione

HYDROMEC

Catalogue code: MA-RCM-OS-HM015

EN

GENERALITY

The gearboxes do not fall within the scope of Machinery Directive 2006/42 / EC, as they are dentified as components of the machine.

Article. 35 of the guide to the Machinery Directive states:
"The Machinery Directive does not apply directly to the components of the machines, such as, for example, the speed reducers, which does not have a specific application as such, but are intended to be incorporated in machines, although the design and construction of such components must be such as to make the machine completed in compliance with the relevant requirements and basic safety and health protection. "

Smooth operation and the right to request under guarantee require compliance with the information contained in this manual, which must be read before starting up the group.

The gearboxes, which are not an integral part of a machine properly defined, are not nearly machines, but they are only components, therefore do not fall in the purposes of Machinery Directive 2006/42 / EC.e 2006/42 / EC.

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GENERALITA'

I riduttori di velocità non ricadono nel campo d'applicazione della Direttiva Macchine 2006/42/CE, in quanto sono identificati come componenti di macchina.

L'art. 35 della guida alla Direttiva Macchine stabilisce:
"La Direttiva Macchine non si applica direttamente ai componenti delle macchine, quali, per esempio i riduttori di velocità, che non hanno un'applicazione specifica in quanto tali, ma sono destinati ad essere incorporati nelle macchine, sebbene la progettazione e la costruzione di detti componenti devono essere tali da rendere la macchina completata conforme ai requisiti pertinenti e fondamentali in materia di sicurezza e di tutela della salute."

Il funzionamento regolare ed il diritto alla richiesta di prestazioni in garanzia richiedono il rispetto delle informazioni contenute nel presente manuale che deve essere letto prima della messa in funzione del gruppo.

I Riduttori, che non sono parte integrante di una macchina propriamente definita, non sono quasi macchine, ma sono solo componenti, pertanto non ricadono negli scopi della Direttiva Macchine 2006/42/CE.

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SAFETY

• Written authorization is required to operate or use reducers in man lift or people moving devices.
• Check to make sure that certain applications do not exceed the allowable load capacities published in the current catalog.
• Buyer shall be solely responsible for determining the adequacy of the product for any and all uses to which Buyer shall apply the product. The application by Buyer shall not be subject to any implied warranty of fitness for a particular purpose.
• For safety, Buyer or User should provide protective guards over all shaft extensions and any moving apparatus mounted thereon. The User is responsible for checking all applicable
safety codes in his area and providing suitable guards. Failure to do so may result in bodily injury and/or damage to equipment.
• Gearboxes operating in high position should have a protective shield for any possible parts falling down for casual accidents where people are moving under them.
• Hot oil and reducers can cause severe burns. Use extreme care when removing lubrication plugs and vents.
• Make certain that the power supply is disconnected before attempting to service or remove any components. Lock out the power supply and tag it to prevent unexpected application power.
• Reducers are not to be considered fail safe or self-locking devices. If these features are required, a properly sized, independent holding device should be utilized. Reducers should not be used as a brake.
• Any brakes that are used in conjunction with a reducer must be sized or positioned in such a way so as to not subject the reducer to loads beyond the catalog rating.
• Lifting supports including eyebolts are to be used for vertically lifting the gearbox only and not other associated attachments or motors.
• Use of an oil with an EP additive on units with backstops may prevent proper operation of the backstop. Injury to personnel, damage to the reducer or other equipment may result.
• Overhung loads subject shaft bearings and shafts to stress which may cause premature bearing failure and or shaft breakage from bending fatigue, it not sized properly.

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SICUREZZA

• E’ richiesta autorizzazione scritta per azionare riduttori in ascensori o dispositivi per il movimento delle persone.
• Controllare che alcune applicazioni non eccedano la massima capacità di carico ammessa pubblicata in questo catalogo.
• L’acquirente è l’unico responsabile per la determinazione dell’adeguatezza del prodotto per qualcuna o tutte le utilizzazioni che l’acquirente stesso farà del riduttore. L’applicazione dell’acquirente non potrà essere soggetta ad alcuna implicita
garanzia di montaggio per uno scopo particolare.
• Per ragioni di sicurezza l’acquirente dovrà provvedere a porre protezioni adeguate su tutta la lunghezza dell’albero a tutti gli organi in movimento. L’utilizzatore è responsabile del controllo di tutti i codici di sicurezza e la predisposizione di protezioni adeguate.
In assenza di tali precauzioni si possono verificare incidenti alle persone e danni agli apparati.
• Su riduttori installati in posizioni elevate utilizzare protezioni adeguate per qualsiasi distacco accidentale di parti nel caso di passaggio di persone al di sotto.
• Olio e riduttori bollenti possono causare gravi ustioni. Usare estrema cautela nella rimozione dei tappi e delle ventole.
• Assicurarsi che la corrente di alimentazione sia scollegata prima di riparare o rimuovere alcun componente. Chiudere l’alimentazione e contrassegnare tale operazione per evitare accensioni accidentali.
• I riduttori non devono essere considerati esenti da guasti o a bloccaggio automatico. Se sono indispensabili queste caratteristiche, deve essere utilizzato un dispositivo indipendente della dimensione adatta.
I riduttori non devono essere utilizzati come freni.
• Qualsiasi freno sia utilizzato insieme al riduttore deve essere della giusta grandezza e posizionato in modo da non causare carichi eccessivi non previsti dai dati forniti nel catalogo.
• I dispositivi di sollevamento come le golfare devono essere usati solo per sollevare verticalmente il riduttore e non altri di spositivi associati o motori.
• L’utilizzo di un olio con un additivo EP su gruppi provvisti di dispositivo di arresto possono inficiare l’uso corretto del freno e provocare danni alle persone, alle cose ed al riduttore stesso nonché ad altri apparecchi.
• I Carichi sospesi assoggettano i cuscinetti della vite e la vite stessa a sollecitazioni che possono causare, se non adeguatamente dimensionati, l’usura prematura dei cuscinetti e/o la rottura della vite a causa della resistenza alla flessione.

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SAFETY

Gearboxes in this manual are intended for use in industrial applications and meet the standards and regulations that can be adopted.

The performance and specifications are traceable on the nameplate and related documentation.

Transport
Carefully check the status upon receipt and any damage immediately to the carrier.

ASSEMBLY OF PRODUCTS

The following assembly drawings are meant to assist in the search of the main components of the various types of gearbox.

The various designs and dimensions, assembling versions, number of stages, actually generate multiple solutions and therefore we invite you to apply for specific documentation.

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SICUREZZA

I riduttori presenti in questo manuale sono rivolti ad uso in applicazioni industriali e corrispondono agli standard e alle regolamentazioni adottabili.

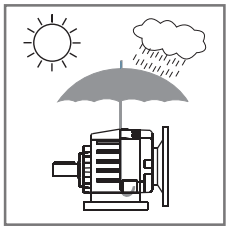
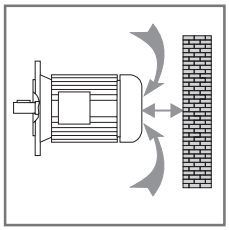
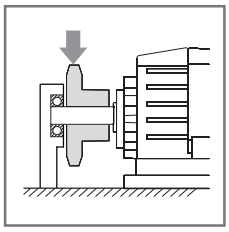
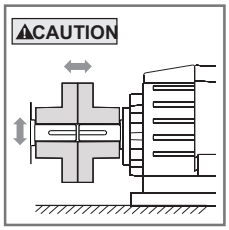
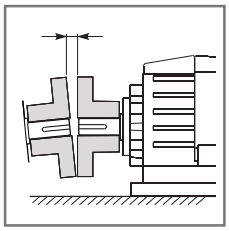
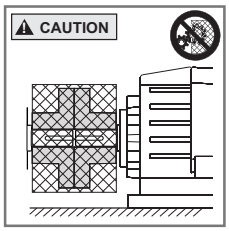
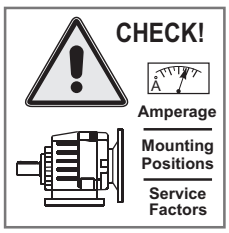
Le prestazioni e i dati tecnici sono rintracciabili sulla targhetta e sulla relativa documentazione .

Trasporto
Verificare con attenzione lo stato al ricevimento e contestare immediatamente eventuali danni al trasportatore.

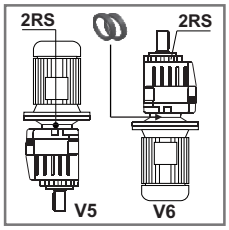
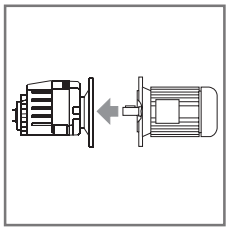
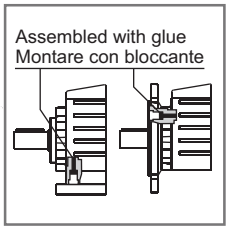
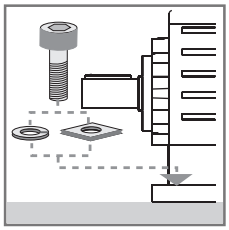
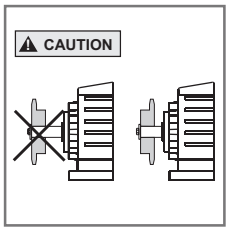
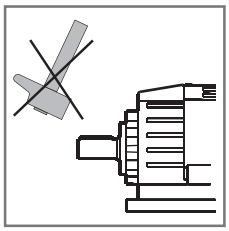
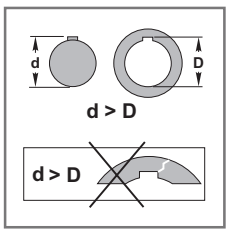
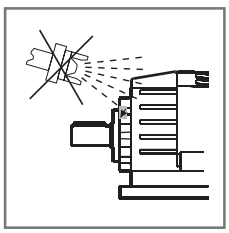
ASSEMBLAGGIO DEI PRODOTTI

I seguenti disegni di assieme hanno come fine di aiutare nella ricerca dei componenti principali dei vari tipi di riduttore
.
Le varie forme costruttive e dimensionali, delle versioni di montaggio, del numero di coppie di riduzione, generano in realtà molteplici soluzioni e pertanto si invita a richiedere la documentazione specifica.

INSTALLATION CHECK LIST

✓ *Please Check*		EN	I
Installation **Installazione**	☐ 	When installed out doors, make sure protection is provided from atmospheric elements.	Per riduttori installati all'esterno prevedere opportune protezioni contro gli agenti atmosferici e l'irraggiamento diretto. Per installazioni in ambienti umidi adottare adeguate protezioni sulle superfici lavorate del riduttore.
	☐ 	Make sure there is sufficient space between any obstructions and the motor's air intake area to provide adequate cooling for the motor.	Lasciare fra il copriventola del motore e l'eventuale parete uno spazio sufficiente a garantire il passaggio dell'aria di raffreddamento.
	☐ 	For very heavy radial load, additional output shaft support may be required to prevent premature bearing failure or shaft breakage from bending fatigue.	In applicazioni con un carico radiale molto elevato si consiglia di prevedere un supporto supplementare sull'albero.
	☐ 	The system of connected rotating parts must be free from critical speed, torsional or other type vibration, no matter how induced. The responsibility for this system ananlysis lies with the purchaser of the speed reducer.	Il collegamento delle parti in rotazione deve essere esente da qualsiasi tipo di torsione o di vibrazione dovuta alla velocità.
	☐ 	Check shaft and coupling alignment. Check proper coupling gap before to lock all foundation bolts that should be routinely checked.	Si consiglia di controllare l'allineamento delle parti inrotazione (collegamenti, alberi etc.) prima della messa in funzione del riduttore e periodicamente controllare il fissaggio dei bulloni di collegamento.
	☐ 	For safety, Buyer or User should provide protective guards over all shaft extensions and any moving apparatus mounted thereon. The User is responsible for checking all applicable safety codes in his area and providing suitable guards. Failure to do so may result in bodily injury and/or damage to equipment.	Per la sicurezza, il compratore o l'utente dovrebbero prevedere delle protezioni sopra tutti gli alberi e tutti gli apparecchi messi in rotazione montati sul riduttore.
	☐ 	Test run the first unit to verify proper operation.	Si consiglia di eseguire un chek-up di prova prima della messa in funzione per assicurare un funzionamento adeguato, controllando la Potenza Assorbita.

INSTALLATION CHECK LIST

✓ *Please Check*		EN	I
☐		Do not change mounting positions without contacting our factory. Altering the mounting position may require special lubrication provisions which must be installed from the factory. When reducers are mounted in positions V5 or V6 and used in continuous duty applications, replace the upper bearing with a self lubricated style bearing, and we suggest double input seal for V6.	Specificare in fase d'ordine se i riduttori devono essere forniti per posizioni di montaggio V5÷V6 per prevedere eventuali cuscinetti 2RS (schermati), ed eventuali anelli di tenuta ag giuntivi. Per la posizione V6 è consigliato usare 2 anelli di tenuta. (posizione non adatta per motori 2 poli)
☐		When mounting a motor to reducers, the fastening bolts should not be tightened un til both the reducer flange and motor face are in contact. When mounting is complete check by manually rotating the fan to be sure the as sem bly turns freely.	L'accoppiamento al motore deve essere libero e scorrevole. Il serraggio delle viti di fissaggio deve essere effettuato solo quando le due flange saranno a contatto. Ad assemblaggio avvenuto controllare che il motore ruoti liberamente agendo manualmente sulla ventola.
☐		In applications where multiple starts, stops or reverses occurs, it is recommended to block the fastening bolts of the output flange and feet.	In applicazioni caratterizzate da numerosi avviamenti/arresti o inversioni, è consigliabi - le bloccare le viti di fissaggio delle flange e piedi.
☐		Mount the reducer on a flat sur face free of vibration. If high over hung loads are expected, it is advisable to reinforced bolt heads with wa shers as shown in picture.	Assicurarsi che il fissaggio del riduttore sia effettuato su un basamento rigido, in piano e non soggetto a vibrazioni. Se si prevedono elevate sollecitazioni utilizzare rosette spaccate sotto la testa delle viti difissaggio al basamento.
☐		Make sure that munting of pulleys or pinions does not create over hung loads exceeding the capacity of the reducer.	Accertarsi che l'eventuale montaggio di pignoni o pulegge a sbalzo su gli alberi sia stato convalidato da precedenti verifiche di ammissibilità dei carichi risultanti.
☐		When mounting pinions, pulleys or couplings on the reducer's shaft, protect thebearings from impact by using the appropriate pullers and threaded holes in the end of the reducer shaft.	Nel montaggio di pignoni, giunti o pulegge sugli alberi del riduttore evitare urti facendo uso di appropriati estrattori ancorati nei fori filettati presenti all'estremità degli alberi stessi.
☐		When mount ing items to the re ducer shaft, appropriate anti-seize and oxidizer com - pounds should be used, and keys di men - sions are con nect.	In tutti gli accoppiamenti albero/mozzo spal - mare le superfici a contat to con adeguati protet tivi antiossi dazione e verificare che le linguette non siano forzate onde evi ta re la rottura del mozzo.
☐		If the reducer is to painted, protect machined surfaces and oil seals from over-spray.	Durante l'eventuale verniciatura proteggere gli anelli di tenuta e i piani lavorati.

Mainteinance / Manutenzione

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Gearboxes that are lubricated for life do not require any mainteinance.
For others, the lubricant needs to be periodically refilled and eventually changed with a suitable grade.

Avoid mixing synthetic and mineral lubricants.

It is advisable to carry out the first mineral oil change after 150 operating hours and the subsequent ones every 4000 operating hours.

From time to time check that the fan cowl is not clogged with dust or fibres.

For brake motors it is also necessary to periodically check the air gap and replace the brake lining if the values exceed permissible ones.
Also check the brake torque using a torque meter.

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I riduttori lubrificati a vita non necessitano di manutenzione. Per gli altri è necessario effettuare una verifica periodica del livello del l'olio eventualmente ripristinandolo con un tipo compatibile.

Evitare di mescolare olii sintetici con olii minerali.

Effettuare il primo cambio del l'olio minerale dopo 150 ore e i successivi dopo 4000 ore di funzionamento.
Verificare che la griglia posteriore del motore non sia ostruita da polvere, filamenti o altro.

Nei motori autofrenanti controllare periodicamente il valore del traferro effettuando la sostituzione del ferodo se i valori sono superiori a quelli ammessi.
Verifi care la coppia frenante con chiave dinamometrica.

Stocking / Stoccaggio

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In order to safeguard the efficiency of the gearboxes, it is required to observe the following indications:
- stock the gearboxes in appropriate environments with a low humidity level
- Place the same possibly onto shelves
- In case of prolonged stocking periods, lubricate the external parts which could be subject to oxidation (shafts and machined parts).

The non lubricated gearboxes should be completely filled up with oil. Oil level should then be reset to required levels during in stallation.

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Per garantire l'efficienza dei riduttori ricevuti, è necessario osservare le seguenti indicazioni:
- conservarli in ambienti riparati con un basso livello di umidità
- disporli su scaffali o pianali
- per periodi di stoccaggio prolungati, lubrificare con grasso le parti esterne che potrebbero essere soggette ad ossidazione (alberi e piani lavorati).

Per i riduttori forniti privi di lubrificante è consigliabile riempirli completamente di olio ripristinandone ovviamente il livello corretto durante l'installazione.

Supply terms / Condizioni di fornitura

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Gearboxes are supplied as follows:
- prearranged to be installed in the ordered mounting position
- tested as per internal specifications
- with appropriate packing
- coupling surfaces not painted
- without nuts and bolts for motor mounting as per IEC version
- already filled in with lubricant where specified
- already painted where specified
- already equipped with lifting eyebolts

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I riduttori vengono forniti come segue:
- già prediisposti per essere installati nella posizione di montaggio come definito in fase di ordine
- collaudati secondo specifiche interne
- appositamente imballati
- le superfici di accoppiamento non sono verniciate
- sprovvisti di dadi e bulloni per montaggio motori per la versione IEC
- già provvisti di lubrificante (dove previsto)
- già verniciati (dove previsto)
- già provvisti di golfare di sollevamento (dove previsto)

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For a proper selection of the required gearbox it is important to follow the following table:

Per una corretta selezione del riduttore o motoriduttore è importante rispettare le seguenti indicazioni:

Service factor
Fattore di servizio

1 Find out the application service factor through the following table.

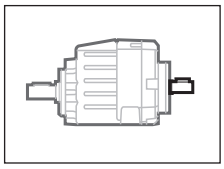
Determinare tramite la seguente tabella il fattore di servizio **fs** relativo all'applicazione.

fs					
Type of load and starts per hour Tipo di carico e avviamenti per ora			Oper. hours per day Ore di funz. giorn.		
			3 h	**10 h**	**24 h**
Continuous or intermittent appl. with start/hour Applicazione cont. o interm. con n.ro operazioni/ora	**≤ 10**	Uniform / Uniforme	0.8	1	1.25
		Moderate / Moderato	1	1.25	1.5
		Heavy / Forte	1.25	1.5	1.75
Intermittent application with start/hour Applicazione intermittente con n.ro operazioni/ora	**> 10**	Uniform / Uniforme	1	1.25	1.5
		Moderate / Moderato	1.25	1.5	1.75
		Heavy / Forte	1.5	1.75	2.15

N.B. For applications with flameproof motors or instantaneous reversal, multiply the service coefficient by 1.15.

N.B. Per azionamenti con motore a scoppio o per funzionamento alternato istantaneo, moltiplicare il valore del coefficiente di servizio per 1.15.

Gearbox selection
Scelta di un riduttore



2 A gear box version R (or B) is to be found from the selection tables, considering the required power P_{1r} (or torque M_{2r} required) and output speed n_2 referred to 1400 min^{-1} (or to gearbox ratio).
Once the gearbox has been chosen, P_{1R} power and n_1 speed (given in the table), it should comply with the following conditions:

Un riduttore nella configurazione R (o B) dovrà essere ricercato nelle tabelle di selezione riduttori in base alla potenza richiesta P_{1r} (o alla coppia richiesta M_{2r}) e ai giri uscita n_2 riferiti a 1400 min^{-1} (o al rapporto di trasmissione i).
Il riduttore selezionato in base alla potenza P_{1R} (indicata in tabella) e a n_1 dovrà soddisfare le seguenti condizioni:

	n_1 = 1400 min^{-1}	**$P_{1R} \geq P_{1r} \times fs$**
2 Poles **2 Poli** N.B.	**n_1 = 2800 min^{-1}**	**$P_{1R} \times 1.6 \geq P_{1r} \times fs$**
	Where 2 pole motors are required, specify when placing order to foresee lubricant and synthetic oil.	Per l'abbinamento a motori a 2800 min^{-1}, specificare sempre tale caratteristica in fase di ordine per prevedere lubrificante e olio sintetico.
6 Poles **6 Poli** N.B.	**n_1 = 900 min^{-1}**	**$P_{1R} / 1.5 \geq P_{1r} \times fs$**

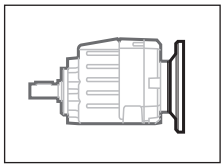
Following symbols will be found in the selection tables of the gearboxes:

Alle tabelle di selezione dei riduttori è associata la seguente simbologia:

n_2 [min^{-1}]	i	P_{1M} [kW]	M_{2M} [Nm]	f.s.	P_{1R} [kW]	M_{2R} [Nm]
200	7	0.18	7	2.3	0.42	16
132	10.6	0.18	10	1.6	0.28	16
93	15	0.18	13	1.3	0.24	18
74	19	0.18	16	1.1	0.20	18
47	30	0.12	15	1.3	0.16	20

n_2	[min^{-1}]	output speed (n_1 = 1400 min^{-1})	giri in uscita (n_1 = 1400 min^{-1})
i	—	reduction ratio	rapporto di riduzione
P_{1M}	[kW]	motor input power (n_1 = 1400 min^{-1})	potenza nominale motore (n_1 = 1400 min^{-1})
M_{2M}	[Nm]	output torque (n_1 = 1400 min^{-1})	coppia in uscita (n_1 = 1400 min^{-1})
P_{1R}	[kW]	Transmitted power at input gearbox	potenza trasmessa in entrata
M_{2R}	[Nm]	Transmitted output torque	coppia trasmessa in uscita
RD	—	Dynamic efficiency	rendimento dinamico
Mn	—	Tooth normal module	modulo normale del dente

EN I



3 Selection tables can be used also for the mounting version P (With IEC B5 - B14 motor flange).
In this case, be sides carrying out all previous cheques, it is also necessary to verify the availability of the required motors (56, 63, 71, etc.) in the shaded columns.
Associated symbols are the following:

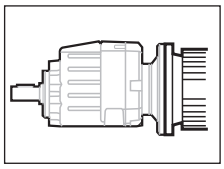
Le tabelle per la selezione riduttori possono essere utilizzate anche per i riduttori nella configurazione P (predisposti per attacco motore IEC B5 o B14).
Oltre alle verifiche precedentemente illustrate è necessario controllare, nelle colonne retinate, l'applicabilità della grandezza (56, 63, 71, ecc.) del motore desiderato.
La simbologia aggiuntiva associata è la seguente:

B5							B14					
A	B	C	D	E	F	G	O	P	Q	R	T	U
56	63	71	80	90	100 112	132	56	63	71	80	90	100 112

B							B-C					
B							B-C					
B							B-C					
B							B-C					
B							B-C					

56,..	—	suitable motor sizes (IEC)		56,..	—	grandezze motore (IEC) applicabili	
B5	—	B5 motorflange		B5	—	predisposizione flange B5	
B14	—	B14 motorflange		B14	—	predisposizione flange B14	
	—	available motor adaptors			—	grandezze motore accoppiabili	
B	—	assembling by means of reduction bushes		B	—	montaggio con boccola di riduzione	
C	—	motor flange/terminal box position		C	—	posizione fori flangia/basetta motore	
B	—	available without reduction bushes		**B**	—	disponibile anche senza boccola	

Selection of a motorized gearbox
Scelta di un motoriduttore



4 Motorized gear boxes (version M) can be easily selected throughout the appropriate selection tables.
Knowing P_1 value, in corresponding to the required output speed, the gearbox should be se lected having a service factor equal or higher than the one shown in point 1.
In addition to 4 pole motors (1400 min^{-1}) it is also possible to select 6 pole (900 min^{-1}) motors .

I motoriduttori (configurazione M) possono essere selezionati agevolmente tramite le tabelle di selezione motoriduttori.
Conoscendo P_1, in corrispondenza del numero di giri in uscita n_2 desiderato, si sceglierà il motoriduttore il cui fattore di servizio fs sia uguale o maggiore a quello definito al punto 1.
Oltre alle motorizzazioni con motori a 4 poli (1400 min^{-1}) è possibile selezionare (dove disponibili) motori a 6 poli (900 min^{-1}).

P_1 = 0.75 kW

n_1= 1400 min^{-1} (80B4) - 900 min^{-1} (90B6)

n_2 [min^{-1}]	M_2 [Nm]	i	fs	⌀					B5	B14
133	53	**10.50**	1.5	24/28	**511**			**80B4**	$63^{B)}$-80-90-100/112	80-90-100/112
139	49	**10.06**	**3.0**	24/25		**402A**		**80B6**	$63^{B)}$-71-80-90	$71^{C)}$-$80^{C)}$-90-100/112
139	49	**10.04**	3.0	24/25			**402C**	**80B4**	$63^{B)}$-71-80-90	$71^{C)}$-$80^{C)}$-90
142	42	**9.85**	2.0	20		**302A**		**80B4**	$63^{B)}$-71-80-90	$71^{C)}$-$80^{C)}$-90

Follwing symbols are associated to the selection tables of the geared motors:

P_1	[kW]	potenza in entrata (n_1 = 1400 min^{-1})		P_1	[kW]	input power (n_1 = 1400 min^{-1})	
n_2	[min^{-1}]	giri in uscita (n_1 = 1400 min^{-1})		n_2	[min^{-1}]	output speed (n_1 = 1400 min^{-1})	
M_2	[Nm]	coppia trasmessa in uscita		M_2	[Nm]	transmitted output torque	
i	—	rapporto di riduzione		i	—	reduction ratio	
fs	—	fattore di servizio		fs	—	service factor	
B5	—	predisposizione flange B5		B5	—	B5 motorflange	
B14	—	predisposizione flange B14		B14	—	B14 motorflange	
B)	—	montaggio con boccola di riduzione		B)	—	mounting with reduction ring	
C)	—	posizione fori flangia/basetta motore		C)	—	motor flange/terminal box position	
IEC		flange attacco motore IEC disponibili		IEC		suitable motorflanges IEC	

Alle tabelle di selezione dei motoriduttori è associata la seguente simbologia:

		EN	I
		An easier selection of the motorized gearbox (closer as possible to sf 1) can be done through our gear selection table (Point 2). In fact only 4 pole motors (1400 min^{-1}) are listed here .	Una selezione semplificata del motoriduttore in base ad un unico fattore di servizio (il più prossimo a 1) può essere effettuata tramite le tabelle di selezione riduttori (punto 2). In questo caso sono riportati solo motoriduttori con motori a 4 poli (1400 min^{-1}).
Gearbox coupled to a speed variator **Riduttore con variatore di velocità**	**5**	Where a hydraulic or mechanic variator is connect to a gearbox, it is necessary to consider if there is a low output speed,when the in put speed is decreasing, M_2 torques can easily exceed their nominal values. In high reduction ratios this effect should be taken even in more consideration.	Qualora al riduttore venga abbinato un variatore idraulico o meccanico, è necessario considerare che a bassi giri, al diminuire della velocità d'ingresso, le coppie M_2 possono superare anche notevolmente il valore nominale. Tale effetto deve essere maggiormente tenuto in considerazione nei rapporti elevati.
Gearbox equipped with a brake motor **Riduttore con motore autofrenante**	**6**	For selection with brake motors, make sure that the torque generated by the load inertia during braking does not exceed the gearbox limits; check (with the appropriate torque meter) that brake torque matches the data given in the project.	Nella selezione con motori autofrenanti, potendo essere considerevole l'effetto inerziale delle masse, è opportuno scegliere riduttori con fs ≥1.
Selections not listed in the catalogue **Selezioni fuori catalogo**	**7**	In cases where higher powers than the ones given in this catalogue have to be used, our factory cannot guarantee the proper operation of the gearbox.	Nel caso vengano applicate potenze superiori a quelle indicate a catalogo, la nostra ditta non può garantire il corretto funzionamento del gruppo.
Notes **Note**	**8**	It is necessary to refer the following the applications to our technical service. — Applications where gearbox failure is critical. — Applications with particularly high inertias — Lifting devices. — High dynamic stress on gearbox housing. — Particular environment conditions with temperatures lower than 5°C or higher than 40°C. — Highly chemical aggressive environment. — Salty environment. — Applications not considered in the catalogue. — Radioactive environment. — Pressure different to atmospheric. — Avoid those applications where total or partial immersion of the gearbox is required.	Occorre tenere nella giusta considerazione e valutare attentamente le segg. applicazioni consultando il ns. Servizio Tecnico. — Utilizzo in servizi che potrebbero risultare pericolosi per l'uomo in caso di rottura del riduttore. — Applicazioni con inerzie particolarmente elevate. — Utilizzo come organo di sollevamento. — Applicazioni con elevate sollecitazioni dinamiche sulla cassa del riduttore. — Utilizzo in ambiente con temperatura inferiore a 5°C o superiore a 40°C. — Utilizzo in ambiente con presenza di aggressivi chimici. — Utilizzo in ambiente salmastro. — Posizioni di piazzamento non previste a catalogo. — Utilizzo in ambiente radioattivo. — Utilizzo in ambiente con pressione diversa da quella atmosferica. — Evitare applicazioni dove è prevista l'immersione, anche parziale, del riduttore.

EN I

ONE STEP
ONE STAGE GEAR

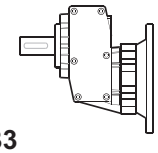
All the units are supplied with synthetic oil for life time lubrication, no maintenance is necessary.
The gearboxes are supplied with an oil quantity possible for mounting positions B3 / B5.

For vertical mounting V5 / V6 please specify in the order.

ONE STEP
RIDUTTORI MONOSTADIO

Tutti i riduttori tipo sono forniti completi di olio sintetico per una lubrificazione permanente e non necessitano di alcuna manutenzione.
I riduttori sono forniti con una quantità d'olio adatta per tutte le posizioni di montaggio.

Nel caso di utilizzo in posizioni verticali quali V5 / V6 è necessario specificare in fase d'ordine tale scelta.



B3

Oil quantity (Lt.) / Quantita (Lt.)			
211A	**311A**	**411A**	**511A**
0.05 LT	0.10 LT	0.10 LT	0.29 LT

OIL PLUG POSITIONS - TYPES / POSIZIONE TAPPI OLIO - TIPI

data 17/03/15
LUB_RCX_01

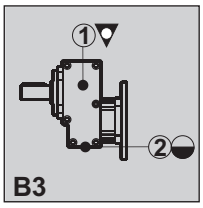
☐ These plugs are on the back side. ▽ Filling & Breather ▼ Filling closed △ Emptying ◒ Level

A **TO1/4LIA** Allum. level plug 1/4	**D** **TO1/4TPO** With valve 1/4	**K** **TO1/4CSS** Steel breath plug 1/4 **J** **TO3/8CSS** Steel breath plug 3/8
I **TO1/4SCA** Allum.closed plug 1/4	**P** **TO3/8-1/4RID** Steel red. 1/4M-3/8F	

SYNTHETIC OIL	
Code	**Description**
LUOTVSF320 (Standard)	Synthetic oil 'Telium VSF320'
	Synthetic oil 'Omala S4 WE320'
LUOBLAS150 (Low temperature)	Synthetic oil 'Blasia S 150'
	Synthetic oil 'Omala S4 WE150'

MINERAL OIL	
Code	**Description**
LUOBLAM460	Mineral oil 'Blasia 460'
	Mineral oil 'Omala S2 G 460

Standard

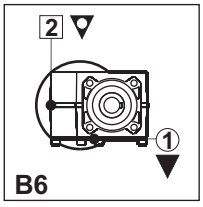


Type		211A	311A	411A	511A
Oil q.ty (Lt.)		0.05	0.10	0.10	0.29
Plugs		As standard without oil plugs			
On request	①		I		K
	②		-		A

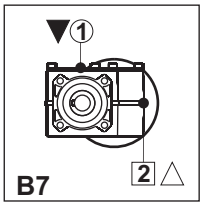
With mineral oil, we always need on open oil plug in the higher position to avoid high housing pressure.

With the synthetic oil all the oil plugs could be closed.

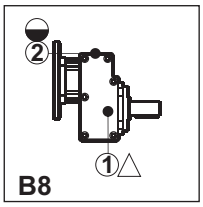
On request / A richiesta



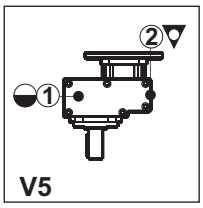
Type		211A	311A	411A	511A
Oil q.ty (Lt.)		0.05	0.10	0.10	0.29
Plugs		As standard without oil plugs			
On request	①		I		I
	②		-		D



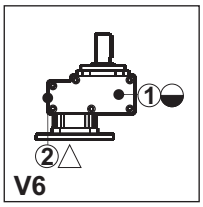
Type		211A	311A	411A	511A
Oil q.ty (Lt.)		0.05	0.10	0.10	0.29
Plugs		As standard without oil plugs			
On request	①		I		I
	②		-		I



Type		211A	311A	411A	511A
Oil q.ty (Lt.)		0.05	0.10	0.10	0.29
Plugs		As standard without oil plugs			
On request	①		I		I
On request	②		-		A



Type		211A	311A	411A	511A
Oil q.ty (Lt.)		0.05	0.10	0.10	0.29
Plugs		As standard without oil plugs			
On request	①		A		A
	②		-		P+J



Type		211A	311A	411A	511A
Oil q.ty (Lt.)		0.05	0.10	0.10	0.29
Plugs		As standard without oil plugs			
On request	①		I		A
	②		-		I

EN I

COAXIAL
COAXIAL GEARBOXES

All the units are supplied with synthetic oil for lifetime lubrication, no maintenance is necessary.

Specify in the order, when mounting position are : V5 / V6 / V8 .

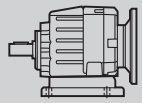
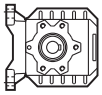
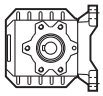
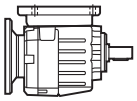
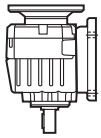
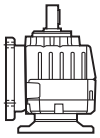
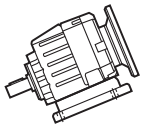
If gearboxes are ordered for B3, but used in differen mounting position, just add / removed oil Q.ty up to the required level (see table).

COAXIAL
RIDUTTORI COASSIALI

Tutti i riduttori sono forniti completi di olio sintetico per la lubrificazione permanente e non necessitano di alcuna manutenzione.

Nel caso di utilizzo in altre posizioni tipoV5 / V6 / V8 è necessario specificare in fase d'ordine tale scelta.

Nel caso i riduttori forniti con una quantità di lubrificante per posizioni di montaggio B3 vengano utilizzati in altre posizioni va aggiunto / tolto olio sintetico fino alla quantità totale riportata in tabella.

	Standard	On request / A richiesta / Auf Wunsch					
	 B3	 B6	 B7	 B8	 V5	 V6	 V8
202A	0.15	0.15	0.15	0.15	0.15	0.15	Contact us
302A	0.15	0.15	0.15	0.15	0.15	0.15	
402A	0.25	0.30	0.40	0.40	0.40	0.50	
403A	0.30	0.35	0.45	0.45	0.45	0.55	
452A	0.31	0.31	0.31	0.31	0.31	0.31	
502A	0.45	0.55	1.00	1.10	1.10	1.15	
503A	0.75	0.75	1.05	1.15	1.20	1.20	
602A	0.55	0.85	1.10	1.20	1.20	1.25	
603A	0.75	0.90	1.15	1.25	1.30	1.35	

Oil quantity (Lt.) / Quantita (Lt.)

OIL PLUG POSITIONS - TYPES / POSIZIONE TAPPI OLIO - TIPI

data 17/03/15
LUB_RCX_02

☐ These plugs are on the back side. ▽ Filling & Breather ▼ Filling closed △ Emptying ◒ Level

A	I	K
TO1/4LIA Allum. level plug 1/4	**TO1/4SCA** Allum.closed plug 1/4	**TO1/4CSS** Steel breath plug 1/4

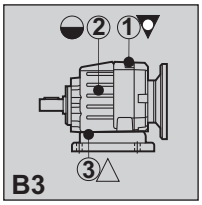
With mineral oil, we always need on open oil plug in the higher position to avoid high housing pressure.

With the synthetic oil all the oil plugs could be closed.

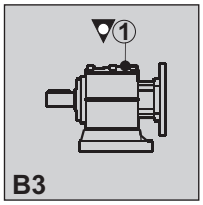
SYNTHETIC OIL	
Code	**Description**
LUOTVSF320 (Standard)	Synthetic oil 'Telium VSF320'
	Synthetic oil 'Omala S4 WE320'
LUOBLAS150 (Low temperature)	Synthetic oil 'Blasia S 150'
	Synthetic oil 'Omala S4 WE150'

MINERAL OIL	
Code	**Description**
LUOBLAM460	Mineral oil 'Blasia 460'
	Mineral oil 'Omala S2 G 460

Standard

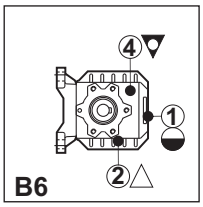


Type	402A	403A	502A	503A	602A	603A
Oil q.ty (Lt.)	0.25	0.30	0.45	0.75	0.55	0.75
Plugs	① As standard only one oil plug type I					
On request ①	K					
On request ②	A					
On request ③	I					

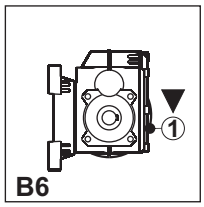


202A	302A	452A
0.15	0.15	0.31
① As standard without oil plugs		
① On request I		

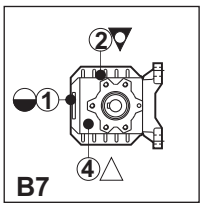
On request / A richiesta



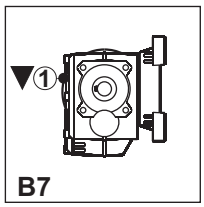
Type	402A	403A	502A	503A	602A	603A
Oil q.ty (Lt.)	0.30	0.35	0.55	0.75	0.85	0.90
Plugs	① As standard only one oil plug type I					
On request ①	A					
On request ②	I					
On request ④	K					



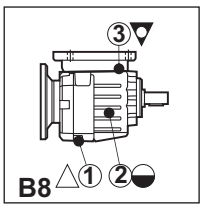
202A	302A	452A
0.15	0.15	0.31
① As standard without oil plugs		
① On request I		



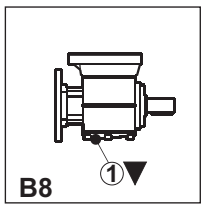
Type	402A	403A	502A	503A	602A	603A
Oil q.ty (Lt.)	0.40	0.45	1.00	1.05	1.10	1.15
Plugs	① As standard only one oil plug type I					
On request ①	A					
On request ②	K					
On request ④	I					



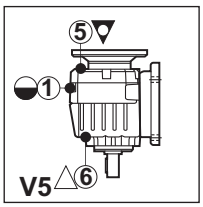
202A	302A	452A
0.15	0.15	0.31
① As standard without oil plugs		
① On request I		



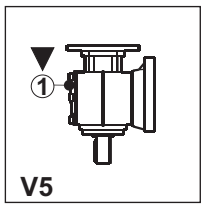
Type	402A	403A	502A	503A	602A	603A
Oil q.ty (Lt.)	0.40	0.45	1.10	1.15	1.20	1.25
Plugs	① As standard only one oil plug type I					
On request ①	I					
On request ②	A					
On request ③	K					



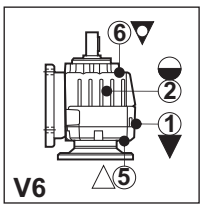
202A	302A	452A
0.15	0.15	0.31
① As standard without oil plugs		
① On request I		



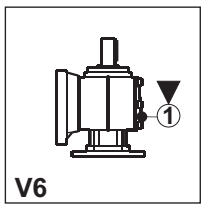
Type	402A	403A	502A	503A	602A	603A
Oil q.ty (Lt.)	0.40	0.45	1.10	1.20	1.20	1.30
Plugs	① As standard only one oil plug type I					
On request ①	A					
On request ⑤	K					
On request ⑥	I					



202A	302A	452A
0.15	0.15	0.31
① As standard without oil plugs		
① On request I		



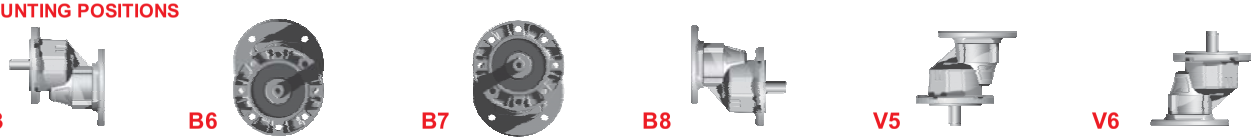
Type	402A	403A	502A	503A	602A	603A
Oil q.ty (Lt.)	0.50	0.55	1.15	1.20	1.25	1.35
Plugs	① As standard only one oil plug type I					
On request ①	I					
On request ②	A					
On request ⑤	I					
On request ⑥	K					



202A	302A	452A
0.15	0.15	0.31
① As standard without oil plugs		
① On request I		

211A-EXP/01 One Step Gearbox

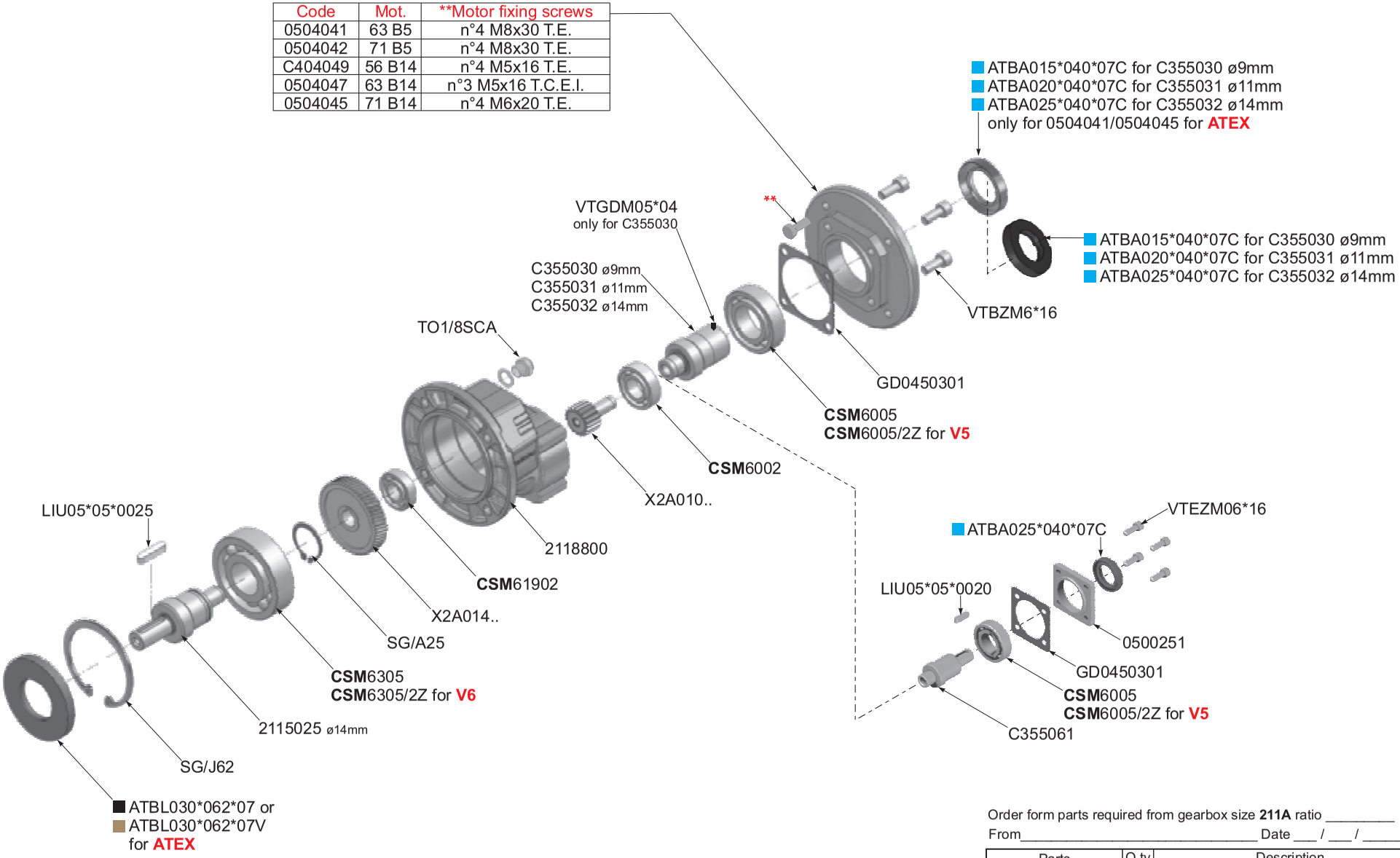
MOUNTING POSITIONS



OIL Q.TY / Q.TA' OLIO
for all positions.

0.05 Lt.

Code	Mot.	**Motor fixing screws
0504041	63 B5	n°4 M8x30 T.E.
0504042	71 B5	n°4 M8x30 T.E.
C404049	56 B14	n°4 M5x16 T.E.
0504047	63 B14	n°3 M5x16 T.C.E.I.
0504045	71 B14	n°4 M6x20 T.E.



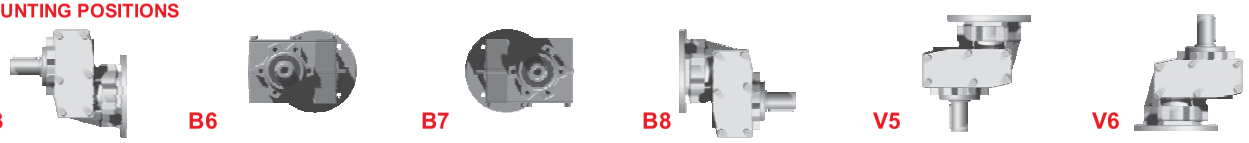
Order form parts required from gearbox size **211A** ratio _____
From_____ Date ___ / ___ / _____

Parts	Q.ty	Description

Fax: +39 0444 536139 - e-mail: hydromec@hydromec.com

311A-EXP/01 One Step Gearbox

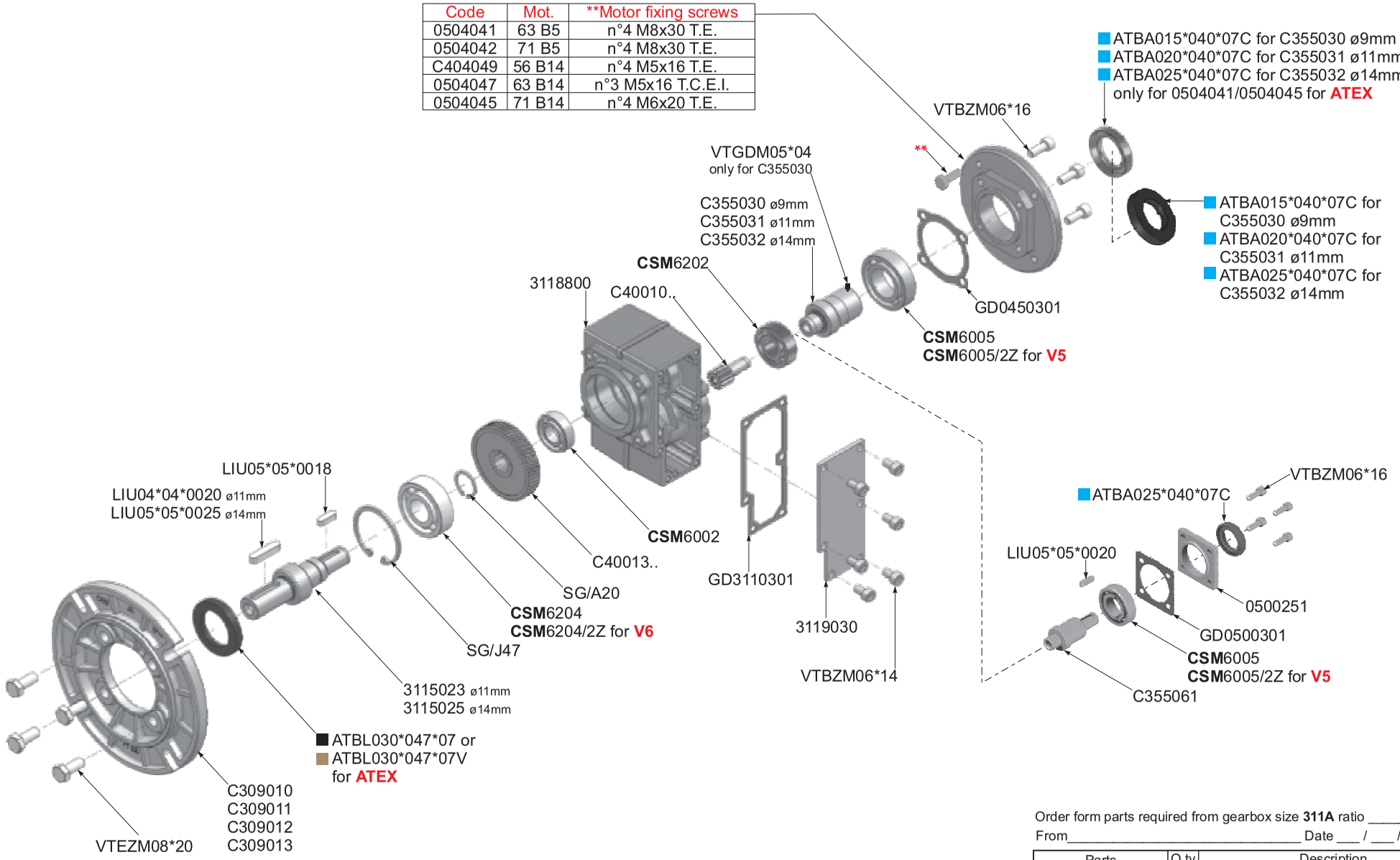
MOUNTING POSITIONS



OIL Q.TY / Q.TA' OLIO
for all positions.

0.10 Lt.

Code	Mot.	**Motor fixing screws
0504041	63 B5	n°4 M8x30 T.E.
0504042	71 B5	n°4 M8x30 T.E.
C404049	56 B14	n°4 M5x16 T.E.
0504047	63 B14	n°3 M5x16 T.C.E.I.
0504045	71 B14	n°4 M6x20 T.E.



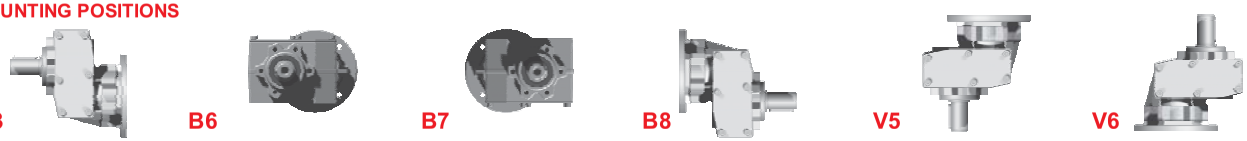
Order form parts required from gearbox size **311A** ratio _____
From_____ Date ___ / ___ / _____

Parts	Q.ty	Description

Fax: +39 0444 536139 - e-mail: hydromec@hydromec.com

411A-EXP/01 One Step Gearbox

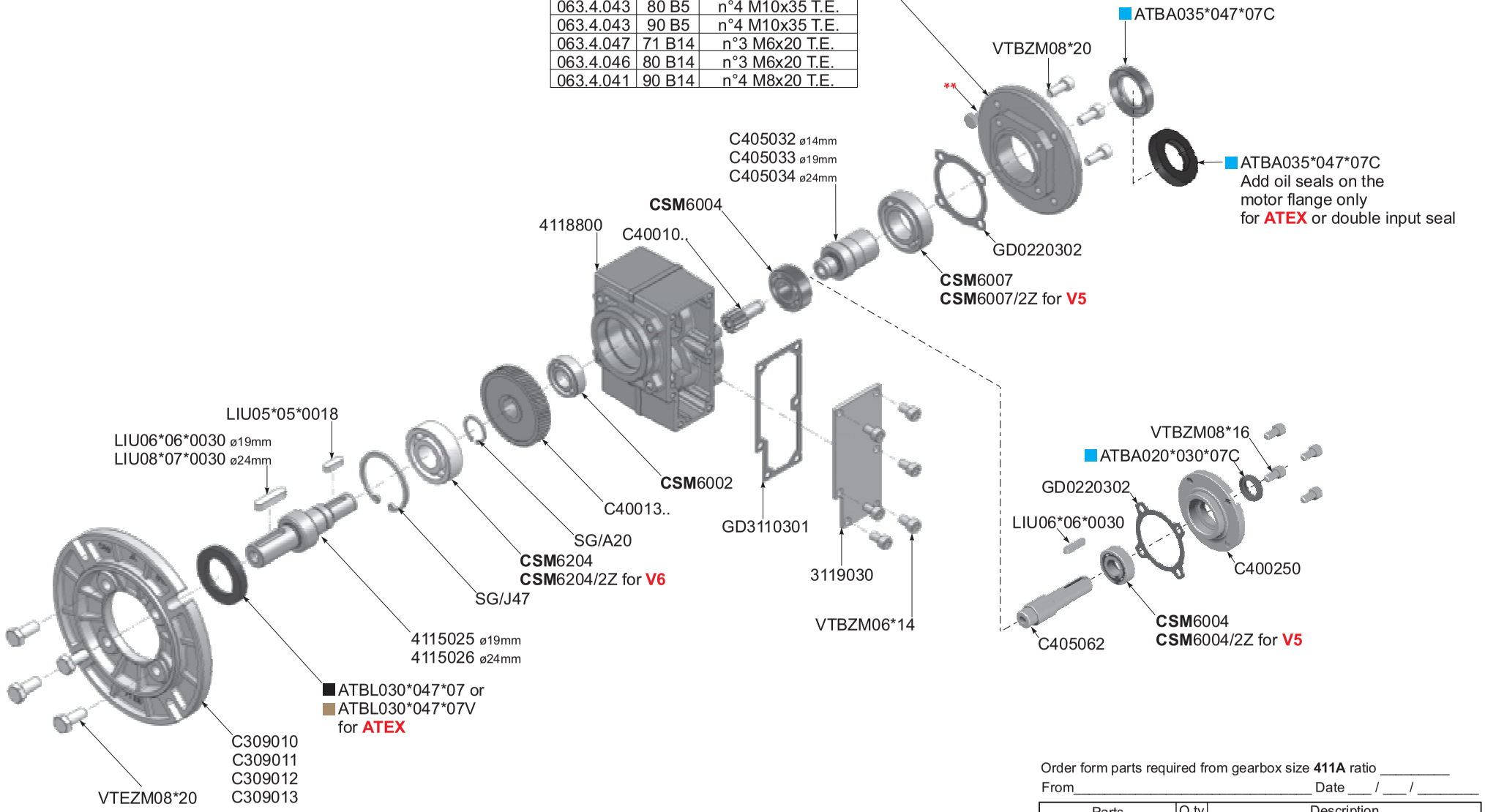
MOUNTING POSITIONS



OIL Q.TY / Q.TA' OLIO
for all positions.

0.10 Lt.

Code	IEC	**Motor fixing screws
063.4.041	63 B5	n°4 M8x30 T.E.
063.4.042	71 B5	n°4 M8x30 T.E.
063.4.043	80 B5	n°4 M10x35 T.E.
063.4.043	90 B5	n°4 M10x35 T.E.
063.4.047	71 B14	n°3 M6x20 T.E.
063.4.046	80 B14	n°3 M6x20 T.E.
063.4.041	90 B14	n°4 M8x20 T.E.



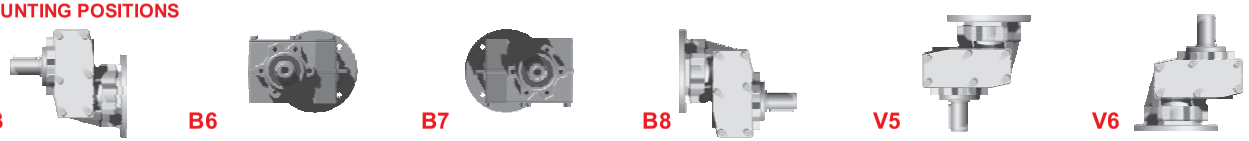
Order form parts required from gearbox size **411A** ratio _____
From_____ Date ___ / ___ / _____

Parts	Q.ty	Description

Fax: +39 0444 536139 - e-mail: hydromec@hydromec.com

511A-EXP/01 One Step Gearbox

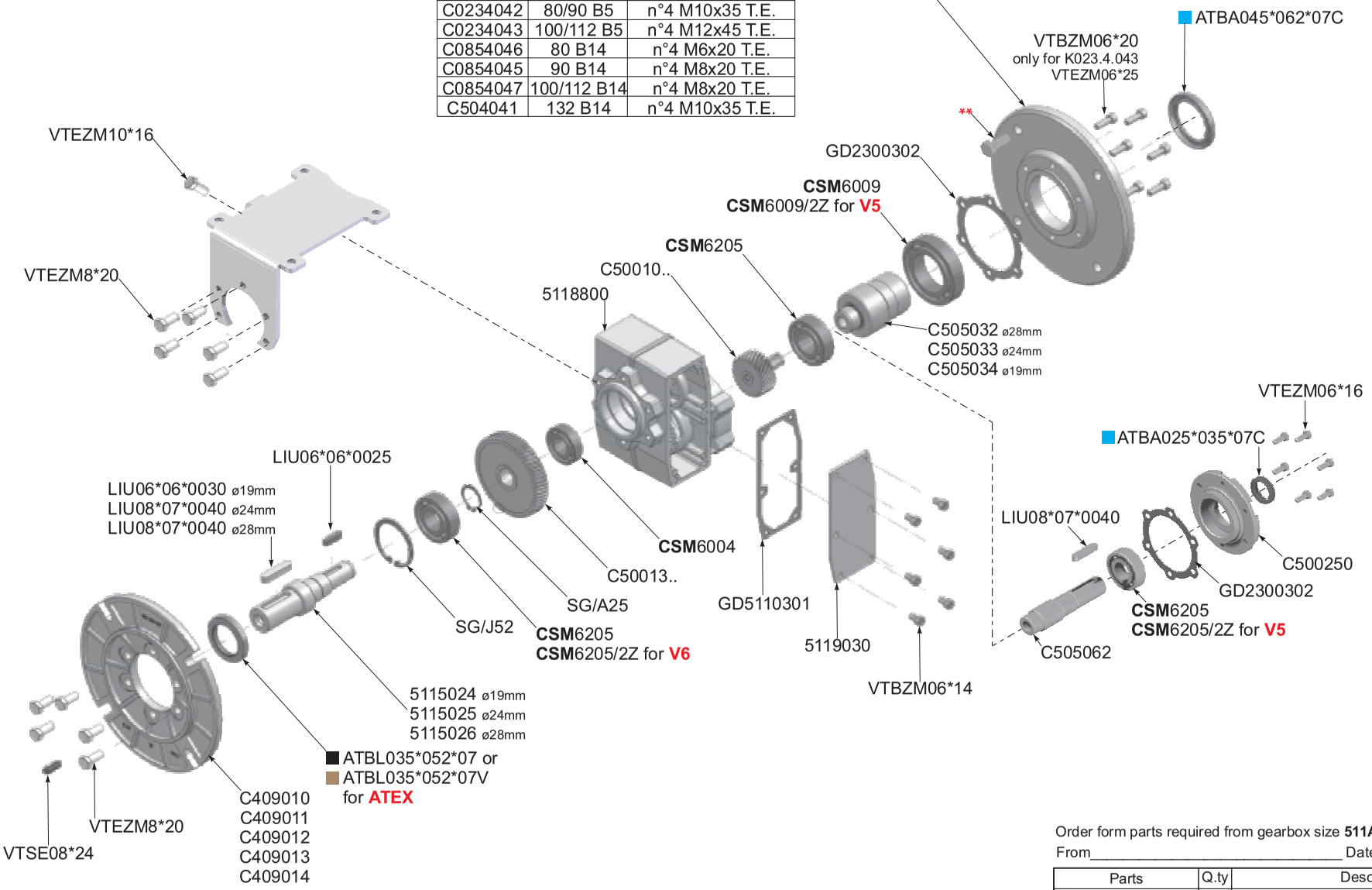
MOUNTING POSITIONS



OIL Q.TY / Q.TA' OLIO
for all positions.

0.29 Lt.

Code	Mot.	**Motor fixing screws
C0234041	71 B5	n°4 M8x30 T.E.
C0234042	80/90 B5	n°4 M10x35 T.E.
C0234043	100/112 B5	n°4 M12x45 T.E.
C0854046	80 B14	n°4 M6x20 T.E.
C0854045	90 B14	n°4 M8x20 T.E.
C0854047	100/112 B14	n°4 M8x20 T.E.
C504041	132 B14	n°4 M10x35 T.E.



Order form parts required from gearbox size **511A** ratio _____
From_____ Date ___ / ___ / _____

Parts	Q.ty	Description

Fax: +39 0444 536139 - e-mail: hydromec@hydromec.com

202A-EXP/01 Coaxial Gearbox

SPARE PARTS / PARTI DI RICAMBIO

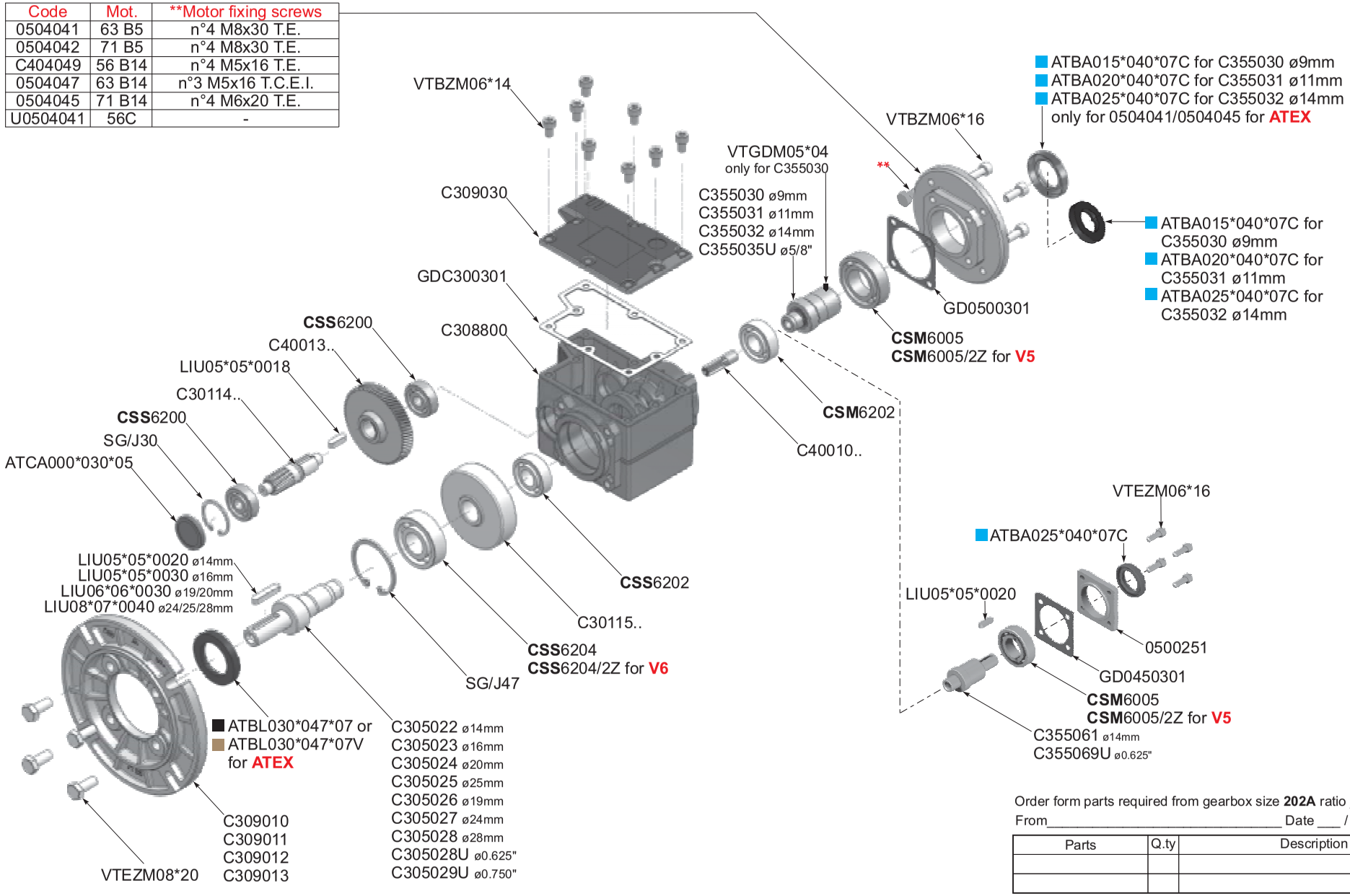
data 17/03/15
RCX_202A/01

MOUNTING POSITIONS

OIL Q.TY / Q.TA' OLIO
for all positions.

0.15 Lt.

Code	Mot.	**Motor fixing screws
0504041	63 B5	n°4 M8x30 T.E.
0504042	71 B5	n°4 M8x30 T.E.
C404049	56 B14	n°4 M5x16 T.E.
0504047	63 B14	n°3 M5x16 T.C.E.I.
0504045	71 B14	n°4 M6x20 T.E.
U0504041	56C	-



Order form parts required from gearbox size **202A** ratio _____
From_____ Date ___ / ___ / _____

Parts	Q.ty	Description

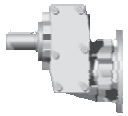
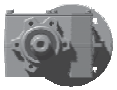
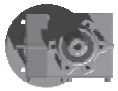
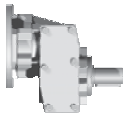
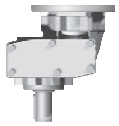
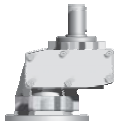
Fax: +39 0444 536139 - e-mail: hydromec@hydromec.com

302A-EXP/01 Coaxial Gearbox

SPARE PARTS / PARTI DI RICAMBIO

data 17/03/15
RCX_302A/01

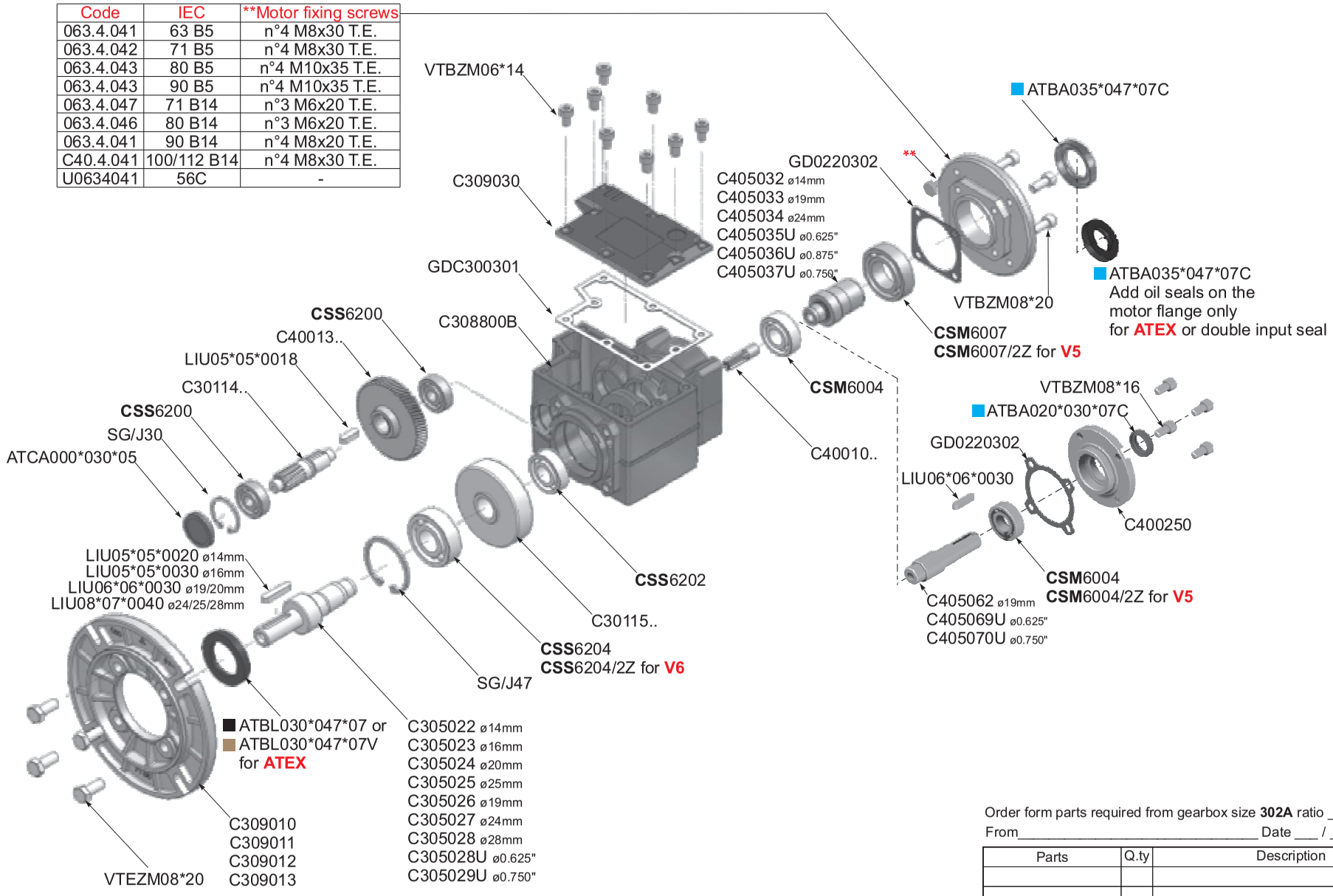
MOUNTING POSITIONS

B3  B6  B7  B8  V5  V6 

OIL Q.TY / Q.TA' OLIO
for all positions.

0.15 Lt.

Code	IEC	**Motor fixing screws
063.4.041	63 B5	n°4 M8x30 T.E.
063.4.042	71 B5	n°4 M8x30 T.E.
063.4.043	80 B5	n°4 M10x35 T.E.
063.4.043	90 B5	n°4 M10x35 T.E.
063.4.047	71 B14	n°3 M6x20 T.E.
063.4.046	80 B14	n°3 M6x20 T.E.
063.4.041	90 B14	n°4 M8x20 T.E.
C40.4.041	100/112 B14	n°4 M8x30 T.E.
U0634041	56C	-



Order form parts required from gearbox size **302A** ratio _____
From_____ Date ___ / ___ / _____

Parts	Q.ty	Description

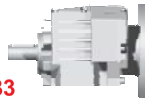
Fax: +39 0444 536139 - e-mail: hydromec@hydromec.com

402A-EXP/01 Coaxial Gearbox

SPARE PARTS / PARTI DI RICAMBIO

data 17/03/15
RCX_402A/01

MOUNTING POSITIONS


B3

B6

B7

B8

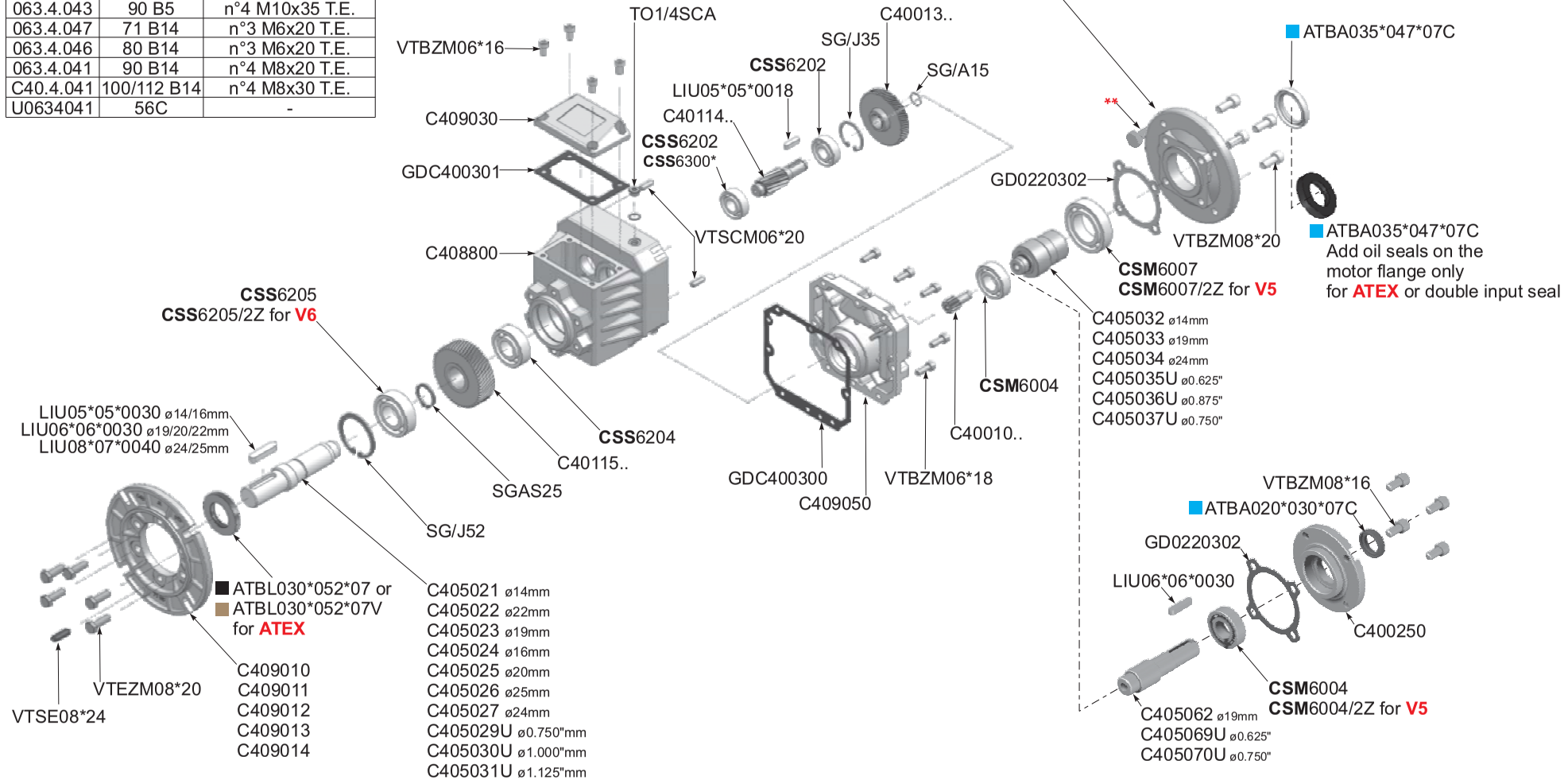
V5

V6

OIL Q.TY / Q.TA' OLIO

Different for each positions.

Code	IEC	**Motor fixing screws
063.4.041	63 B5	n°4 M8x30 T.E.
063.4.042	71 B5	n°4 M8x30 T.E.
063.4.043	80 B5	n°4 M10x35 T.E.
063.4.043	90 B5	n°4 M10x35 T.E.
063.4.047	71 B14	n°3 M6x20 T.E.
063.4.046	80 B14	n°3 M6x20 T.E.
063.4.041	90 B14	n°4 M8x20 T.E.
C40.4.041	100/112 B14	n°4 M8x30 T.E.
U0634041	56C	-



Order form parts required from gearbox size **402A** ratio _____

From_____ Date ___ / ___ / _____

Parts	Q.ty	Description

* Using the gear code C40.1.141 mount bearing CSS6300.

* Usando l'ingranaggio cod. C40.1.141 montare il cuscinetto CSS6300

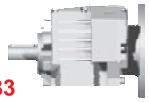
Fax: +39 0444 536139 - e-mail: hydromec@hydromec.com

403A-EXP/01 Coaxial Gearbox

SPARE PARTS / PARTI DI RICAMBIO

data 17/03/15
RCX_403A/01

MOUNTING POSITIONS


B3

B6

B7

B8

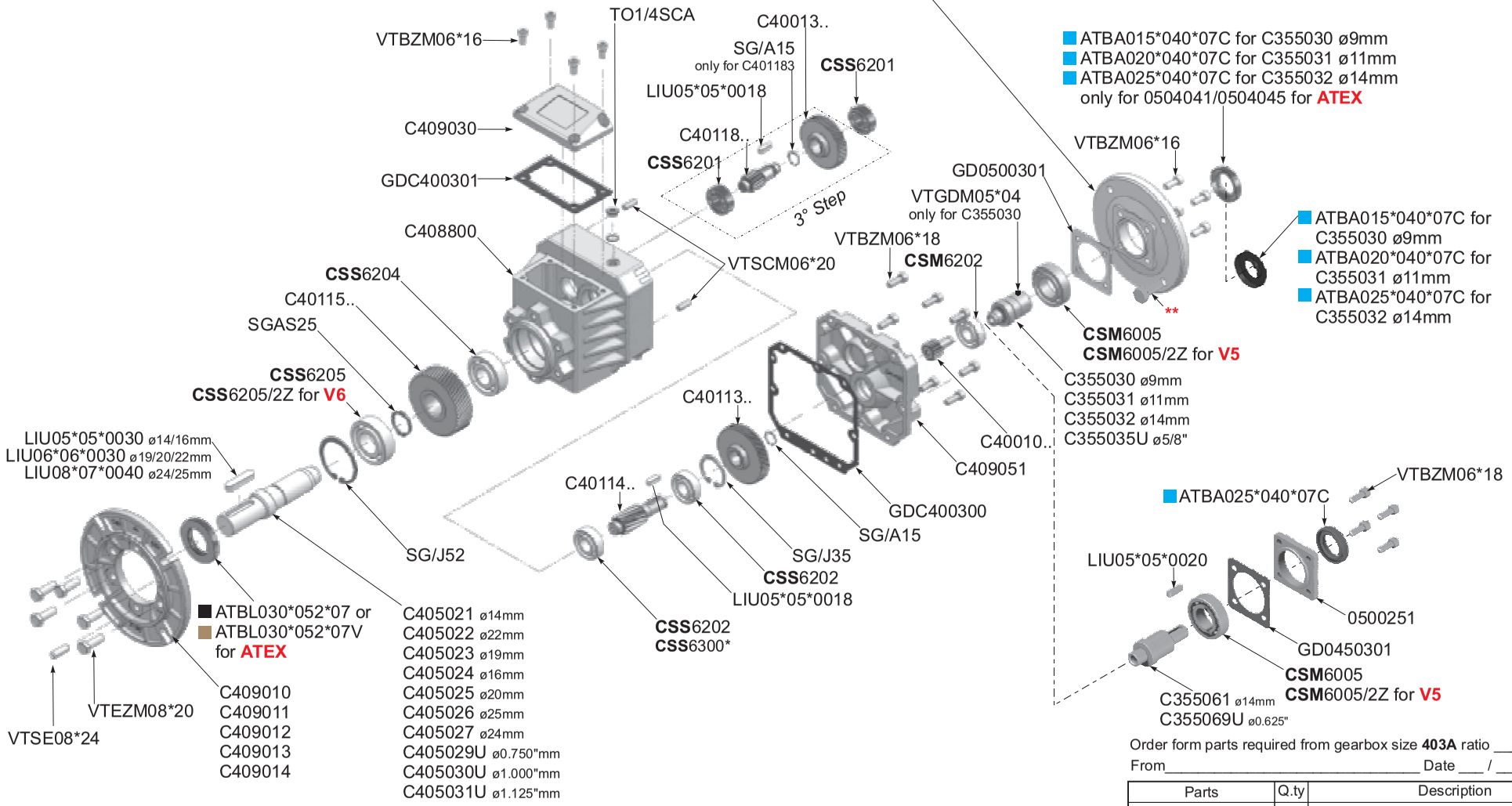
V5

V6

OIL Q.TY / Q.TA' OLIO

Different for each positions.

Code	Mot.	**Motor fixing screws
0504041	63 B5	n°4 M8x30 T.E.
0504042	71 B5	n°4 M8x30 T.E.
C404049	56 B14	n°4 M5x16 T.E.
0504047	63 B14	n°3 M5x16 T.C.E.I.
0504045	71 B14	n°4 M6x20 T.E.
U0504041	56C	-



* Using the gear code C40.1.141 mount bearing CSS6300.
* Usando l'ingranaggio cod. C40.1.141 montare il cuscinetto CSS6300

Order form parts required from gearbox size **403A** ratio _____
From_____ Date ___ / ___ / _____

Parts	Q.ty	Description

Fax: +39 0444 536139 - e-mail: hydromec@hydromec.com

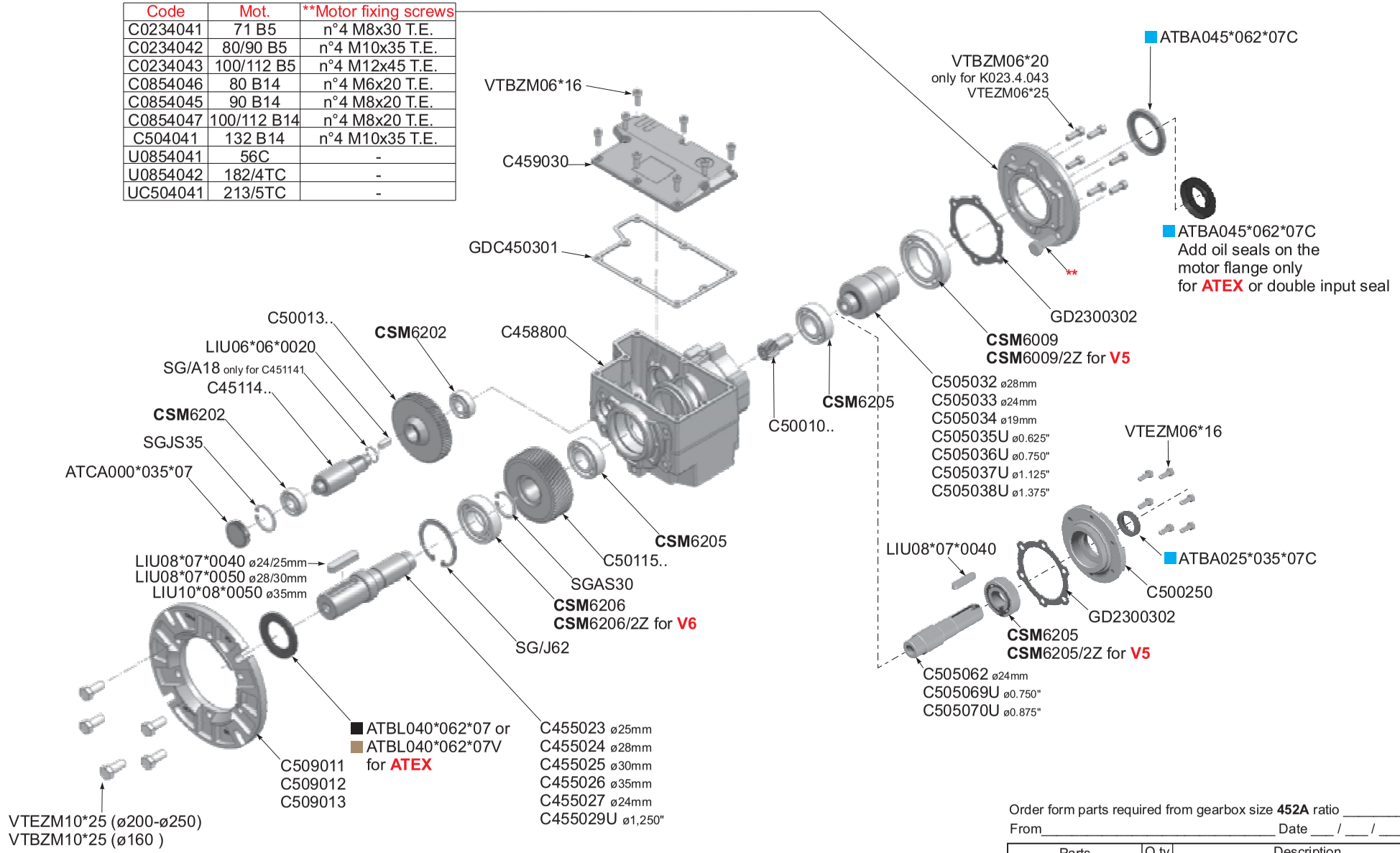
452A-EXP/01 Coaxial Gearbox

MOUNTING POSITIONS

OIL Q.TY / Q.TA' OLIO

Different for each positions.

Code	Mot.	**Motor fixing screws
C0234041	71 B5	n°4 M8x30 T.E.
C0234042	80/90 B5	n°4 M10x35 T.E.
C0234043	100/112 B5	n°4 M12x45 T.E.
C0854046	80 B14	n°4 M6x20 T.E.
C0854045	90 B14	n°4 M8x20 T.E.
C0854047	100/112 B14	n°4 M8x20 T.E.
C504041	132 B14	n°4 M10x35 T.E.
U0854041	56C	-
U0854042	182/4TC	-
UC504041	213/5TC	-



Order form parts required from gearbox size **452A** ratio _____

From_____ Date ___ / ___ / _____

Parts	Q.ty	Description

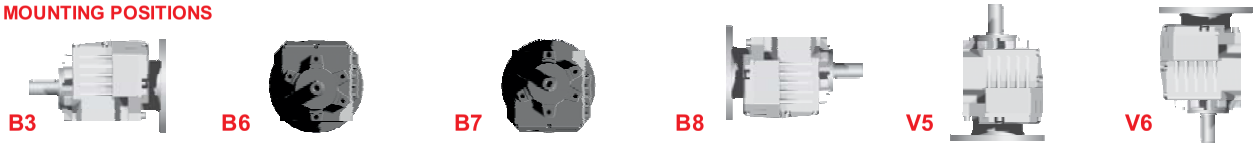
Fax: +39 0444 536139 - e-mail: hydromec@hydromec.com

502A-EXP/01 Coaxial Gearbox

SPARE PARTS / PARTI DI RICAMBIO

data 17/03/15
RCX_502A/01

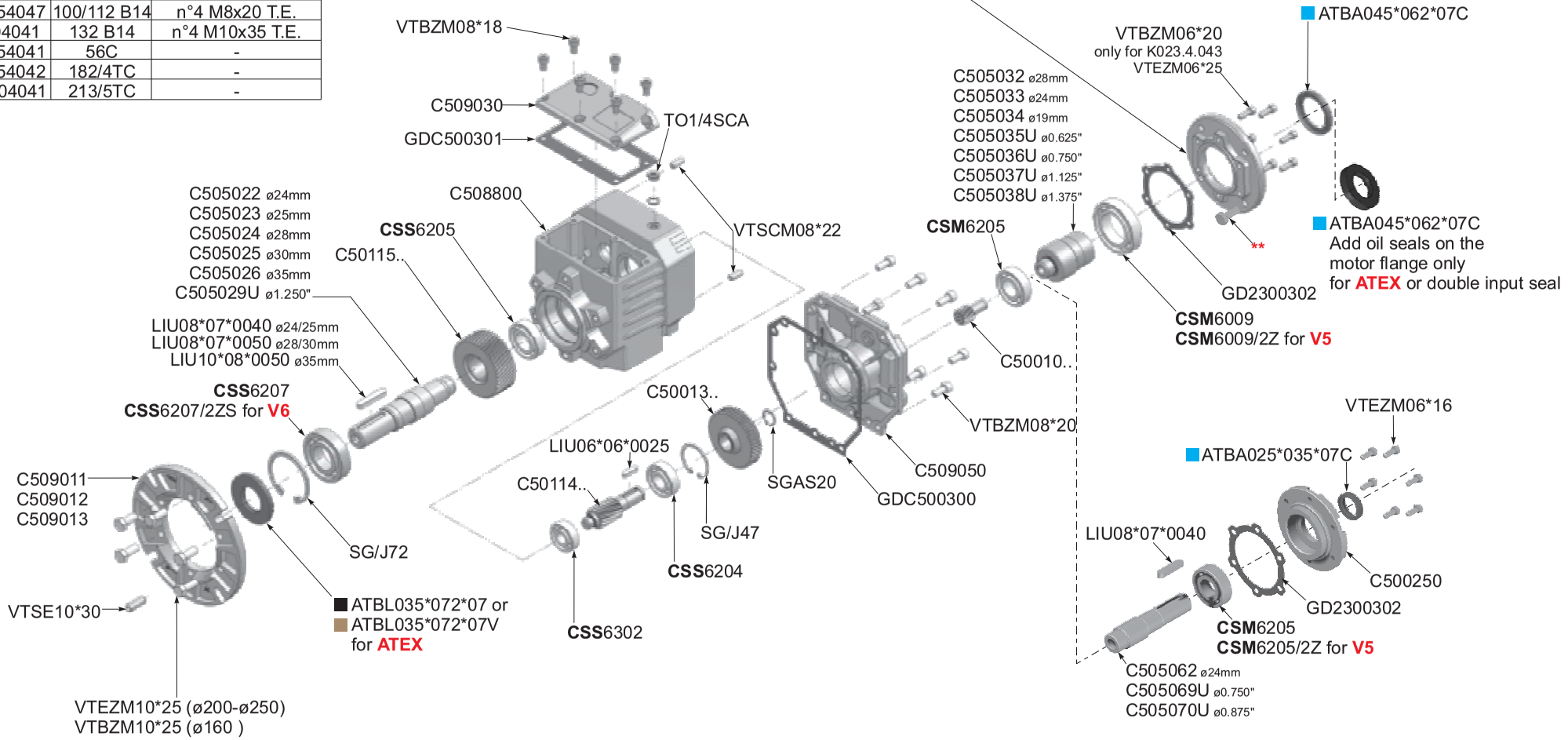
MOUNTING POSITIONS



OIL Q.TY / Q.TA' OLIO

Different for each positions.

Code	Mot.	**Motor fixing screws
C0234041	71 B5	n°4 M8x30 T.E.
C0234042	80/90 B5	n°4 M10x35 T.E.
C0234043	100/112 B5	n°4 M12x45 T.E.
C0854046	80 B14	n°4 M6x20 T.E.
C0854045	90 B14	n°4 M8x20 T.E.
C0854047	100/112 B14	n°4 M8x20 T.E.
C504041	132 B14	n°4 M10x35 T.E.
U0854041	56C	-
U0854042	182/4TC	-
UC504041	213/5TC	-



Order form parts required from gearbox size **502A** ratio _____

From_____ Date ___ / ___ / _____

Parts	Q.ty	Description

Fax: +39 0444 536139 - e-mail: hydromec@hydromec.com

503A-EXP/01 Coaxial Gearbox

SPARE PARTS / PARTI DI RICAMBIO

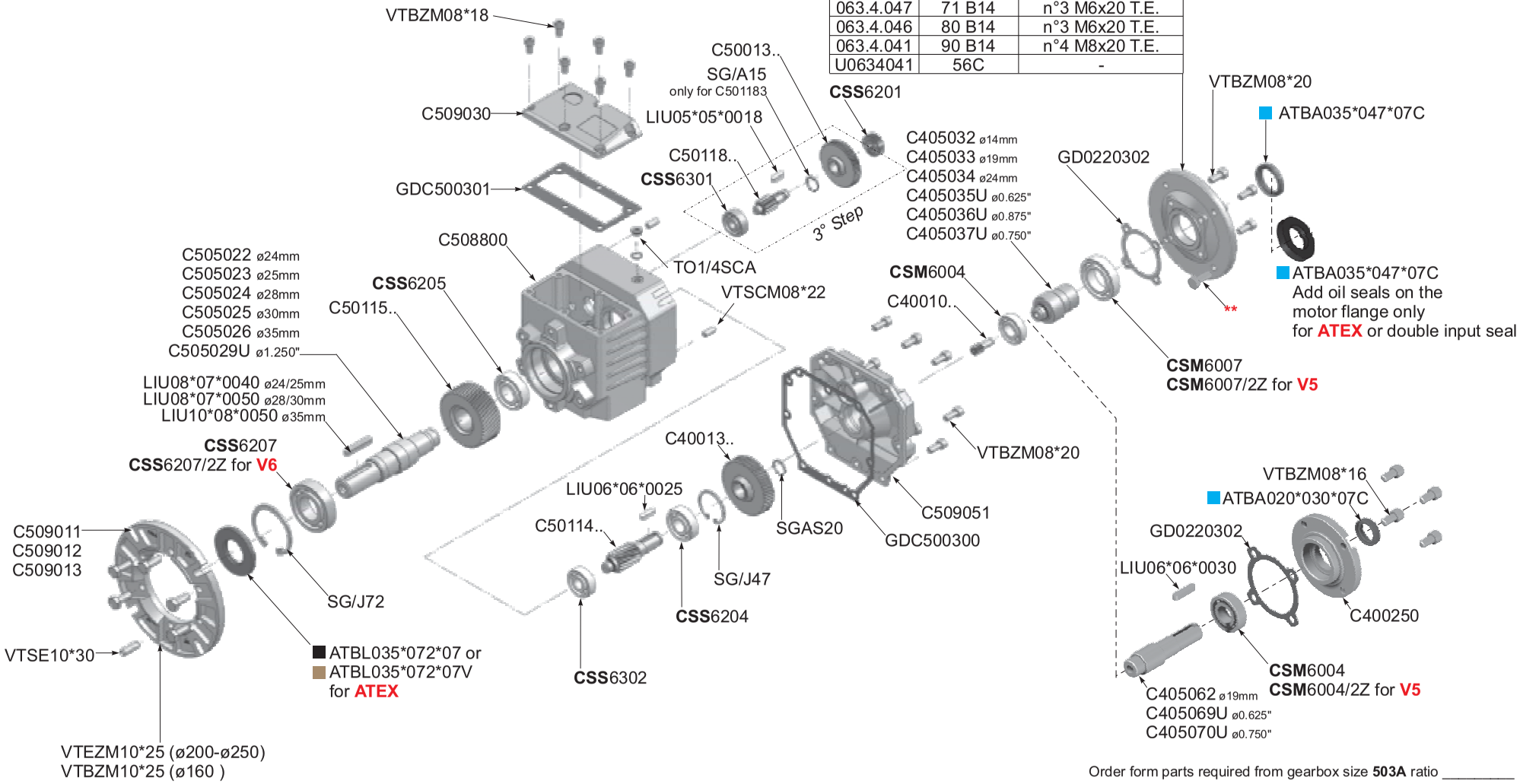
data 17/03/15
RCX_503A/01

MOUNTING POSITIONS

OIL Q.TY / Q.TA' OLIO

Different for each positions.

Code	IEC	**Motor fixing screws
063.4.041	63 B5	n°4 M8x30 T.E.
063.4.042	71 B5	n°4 M8x30 T.E.
063.4.043	80 B5	n°4 M10x35 T.E.
063.4.043	90 B5	n°4 M10x35 T.E.
063.4.047	71 B14	n°3 M6x20 T.E.
063.4.046	80 B14	n°3 M6x20 T.E.
063.4.041	90 B14	n°4 M8x20 T.E.
U0634041	56C	-



Order form parts required from gearbox size **503A** ratio _____

From_____ Date ___ / ___ / _____

Parts	Q.ty	Description

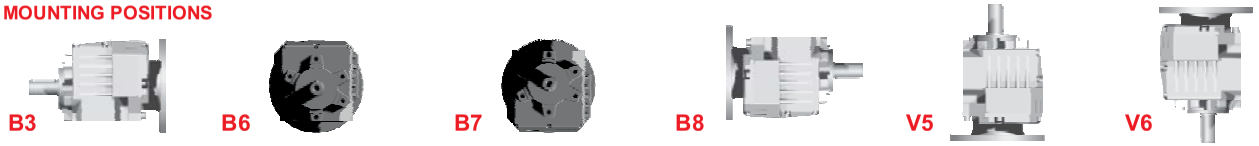
Fax: +39 0444 536139 - e-mail: hydromec@hydromec.com

602A-EXP/01 Coaxial Gearbox

SPARE PARTS / PARTI DI RICAMBIO

data 17/03/15
RCX_602A/01

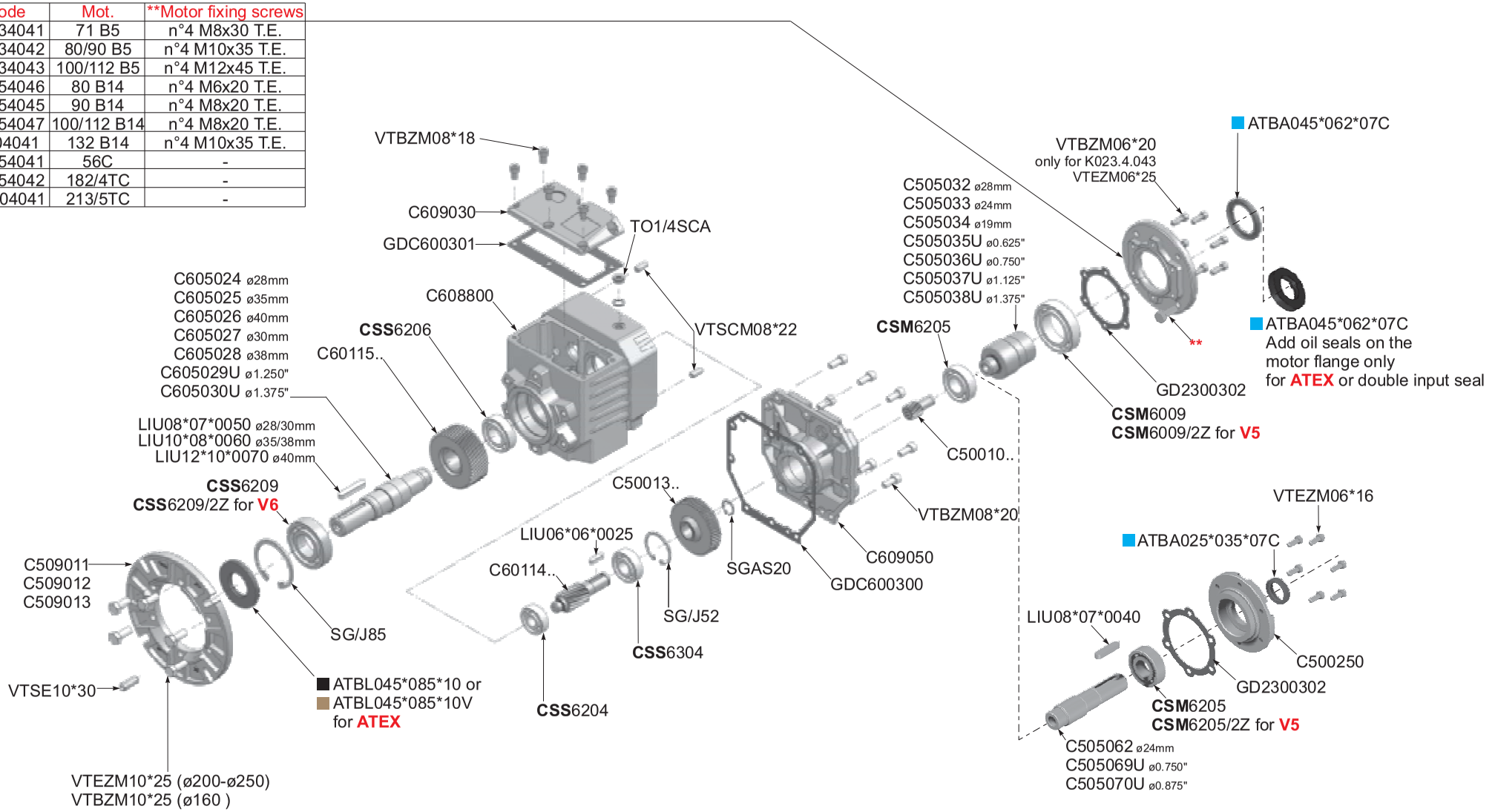
MOUNTING POSITIONS



OIL Q.TY / Q.TA' OLIO

Different for each positions.

Code	Mot.	**Motor fixing screws
C0234041	71 B5	n°4 M8x30 T.E.
C0234042	80/90 B5	n°4 M10x35 T.E.
C0234043	100/112 B5	n°4 M12x45 T.E.
C0854046	80 B14	n°4 M6x20 T.E.
C0854045	90 B14	n°4 M8x20 T.E.
C0854047	100/112 B14	n°4 M8x20 T.E.
C504041	132 B14	n°4 M10x35 T.E.
U0854041	56C	-
U0854042	182/4TC	-
UC504041	213/5TC	-



Order form parts required from gearbox size **602A** ratio _____

From_____ Date ___ / ___ / _____

Parts	Q.ty	Description

Fax: +39 0444 536139 - e-mail: hydromec@hydromec.com

603A-EXP/01 Coaxial Gearbox

SPARE PARTS / PARTI DI RICAMBIO

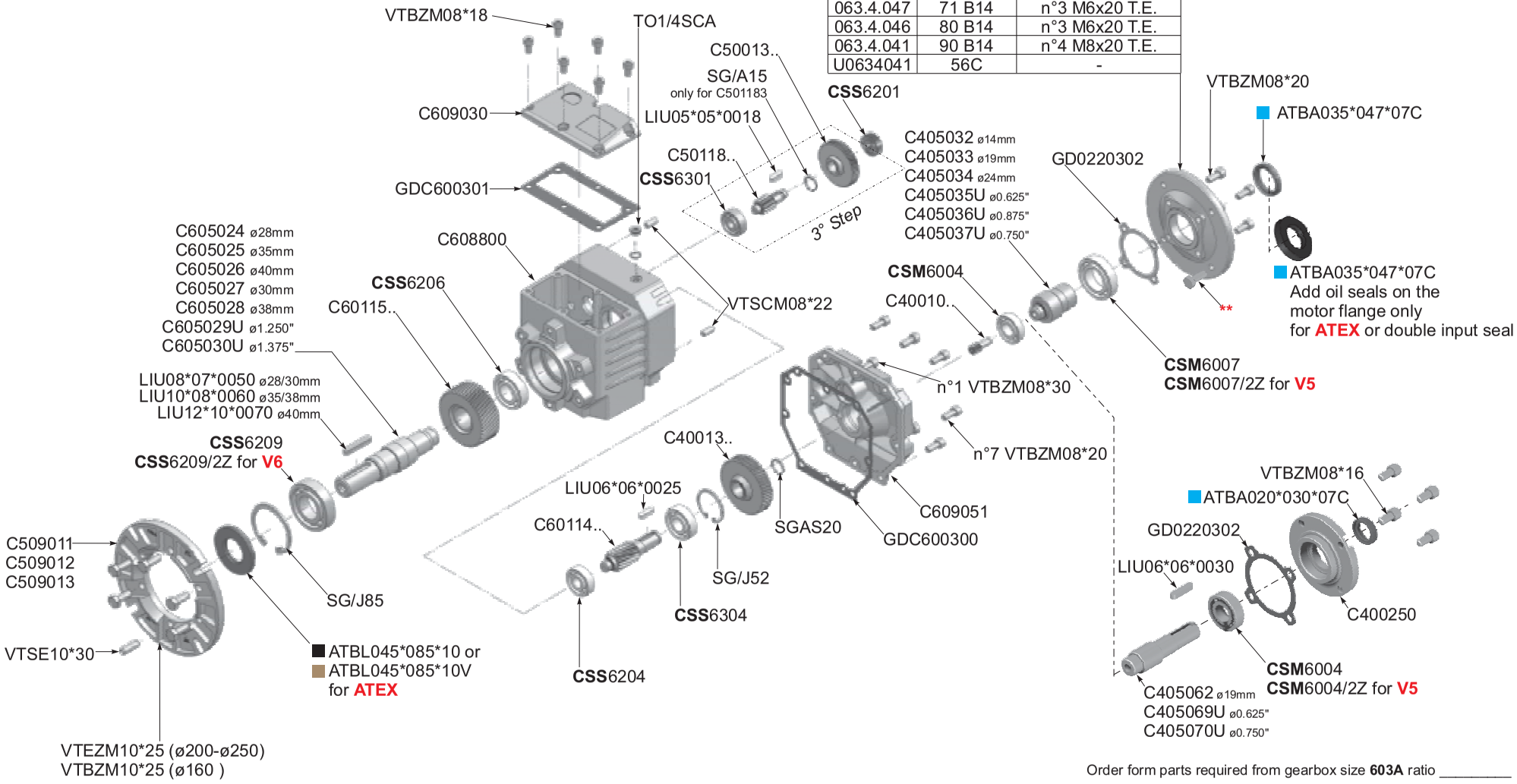
data 17/03/15
RCX_603A/01

MOUNTING POSITIONS

OIL Q.TY / Q.TA' OLIO

Different for each positions.

Code	IEC	**Motor fixing screws
063.4.041	63 B5	n°4 M8x30 T.E.
063.4.042	71 B5	n°4 M8x30 T.E.
063.4.043	80 B5	n°4 M10x35 T.E.
063.4.043	90 B5	n°4 M10x35 T.E.
063.4.047	71 B14	n°3 M6x20 T.E.
063.4.046	80 B14	n°3 M6x20 T.E.
063.4.041	90 B14	n°4 M8x20 T.E.
U0634041	56C	-



Order form parts required from gearbox size **603A** ratio _____

From_____ Date ___ / ___ / _____

Parts	Q.ty	Description

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